

## AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A routing apparatus for guaranteeing Quality of Service (QoS) in the Internet, comprising:

a QoS edge router at a transmitter gateway for receiving an allocating resource request from a transmitting node, setting a first path at a QoS data rate by signaling for setting the first path, and transferring data at the QoS data rate through the first path by receiving a transferring data request from the transmitting node;

at least one QoS core router for receiving the allocating resource request from the QoS edge router at the transmitter gateway, setting a second path at the QoS data rate by signaling for setting the second path, and transferring data at the QoS data rate through the second path by receiving the transferring data request from the QoS edge router at the gateway; and

a QoS edge ~~routing means router~~, at a receiver gateway, for receiving the allocating resource request from the at least one QoS core router, setting a third path at the QoS data rate by signaling for setting the third path, and transferring data at the QoS data rate through the third path by receiving the transferring data request from the at least one QoS core router,

wherein the transmitting node at the transmitter gateway separates multimedia application data and general application data at the transmitter gateway, and the QoS data rate is based on a required data rate for guaranteeing QoS based on application type, a QoS data rate for multimedia applications is guaranteed and a QoS data rate for general applications data is not guaranteed, where the QoS data rate for multimedia applications is prioritized over the QoS data rate for general applications by transmitting multimedia application data over an end-to-end reserved path, including the first, second, and third paths, that is established according to the allocating resource request issued by an application that requires a guaranteed QoS; and

wherein the QoS edge router monitors whether the transmitting node transfers data corresponding to the resource reserved by the transmitting node, prior to setting the first path at the QoS data rate that is based on the required data rate for guaranteeing QoS based on the application type.

2. (Previously Presented) The routing apparatus as recited in the claim 1, wherein the QoS

edge router at the transmitter gateway monitors whether a quantity of data transferred from the transmitting node is smaller than the allocated resource.

3. (Currently Amended) A routing method for guaranteeing Quality of Service (QoS) in the Internet, comprising the steps of:

a) receiving an allocating resource request from a transmitting node at a transmitter gateway and setting a path to a receiving node at a QoS data rate by signaling of each router, including a QoS edge router at the transmitter gateway, a QoS core router, and a QoS edge router at a receiver gateway, for setting a first, second, and third resource path, respectively; and

b) receiving a transferring data request from the transmitting node and transferring data at the QoS data rate to the receiving node through the resource path reserved by the QoS edge router at the transmitter gateway, the QoS core router and the QoS edge router at the receiver gateway,

wherein the transmitting node separates multimedia application data and general application data at a transmitter gateway, and the QoS data rate is based on required data rate for guaranteeing QoS based on application type, a QoS data rate for multimedia applications is guaranteed and a QoS data rate for general applications data is not guaranteed, where the QoS data rate for multimedia applications is prioritized over the QoS data rate for general applications by transmitting multimedia application data over an end-to-end reserved path, including the first, second, and third paths, that is established according to the allocating resource request issued by an application that requires a guaranteed QoS; and

wherein the QoS edge router monitors whether the transmitting node transfers data corresponding to the resource reserved by the transmitting node, prior to setting the first path at the QoS data rate based on the required data rate for guaranteeing QoS based on the application type.

4. (Currently Amended) A computer readable recording medium containing computer executable instructions to perform a method, the method comprising:

a) receiving an allocating resource request from a transmitting node at a transmitter gateway and setting a resource path to a receiving node at a Quality of Service (QoS) data rate by signaling of each router, including a QoS edge router at a transmitter gateway, a QoS core router,

and a QoS edge router at a receiver gateway, for setting a first, second, and third resource path, respectively; and

b) receiving a transferring data request from the transmitting node and transferring data at the QoS data rate to the receiving node through the resource path reserved by the QoS edge router at the transmitter gateway, the QoS core router, and the QoS edge router at the receiver gateway,

wherein the transmitting node separates multimedia application data and general application data at a transmitter gateway, and the QoS data rate is based on required data rate for guaranteeing QoS based on application type, and the computer executable instructions are implemented in a high capacity microprocessor included in a routing apparatus for guaranteeing QoS in the Internet, a QoS data rate for multimedia applications is guaranteed and a QoS data rate for general applications data is not guaranteed, where the QoS data rate for multimedia applications is prioritized over the QoS data rate for general applications by transmitting multimedia application data over an end-to-end reserved path, including the first, second, and third paths, that is established according to the allocating resource request issued by an application that requires a guaranteed QoS; and

wherein the QoS edge router monitors whether the transmitting node transfers data corresponding to the resource reserved by the transmitting node, prior to setting the first path at the QoS data rate based on the required data rate for guaranteeing QoS based on the application type.